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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,753	09/23/2003	James L. McArdle	58717US002	1787
32692	7590	04/14/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			MARCHESCHI, MICHAEL A	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	

1755

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/668,753

Applicant(s)

MCARDLE ET AL.

Examiner

Michael A Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/23/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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Claims 8-11, 17, 23-24 and 26-34 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is indefinite as to the phrase “height defined at least partially by a parabolic function” because the examiner is unclear as to how this is defining the height of the composite. What is meant by a parabolic function and how does this define the composite? Are applicants trying to claim that the composite comprises side faces that are curved (parabola shaped)?

Claim 9 is indefinite as to the phrase “parabolic function includes a square root function” because the examiner is unclear as to what this claim is defining, thus rendering the scope of the claim unclear. What is meant by a parabolic function and a square root function and how do these define the composites?

Claim 10 is indefinite as to the way it is written because it does not clearly define that the abrasive particles comprise modified abrasive particles. The claim should be rewritten (i.e. **The abrasive article..., wherein the ceramic abrasive particles comprise ceramic abrasive particles that have been modified with at least one rare earth oxide modifier.**).

Claim 11 is indefinite as to the way it is written because it does not clearly define that the abrasive particles are modified with these additives. The claim should be rewritten (i.e. **The abrasive article..., wherein the ceramic abrasive particles comprise ceramic abrasive particles that have been modified with an oxide of at least one of...**).

Claim 11 is also indefinite because it appears to be outside the scope of claim 10 because “cobalt” and “magnesium” are not rare earths. This claim should be dependent on claim 1.

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Claim 17 is also indefinite because it appears to be outside the scope of claim 14 because claim 14 defines that the second time is 20 minutes (i.e. definite time defined) but claim 17 defines a different time (i.e. 30 minutes). To overcome this rejection, the phrase “**at least**” should be used to define the second time in claim 14 (i.e. **at least 20 minutes**).

Claim 23 is indefinite as to the phrase “removing the slurry from the production tool” (step (e)) because once the binder precursor (in the slurry) is cured, as defined by step (d), it will not longer be a slurry, but a cured form thereof. Step (e) should be rewritten in a more clear manner.

Claim 24 is indefinite as to the phrase “before the step of removing the slurry from the production tool” (step (e) of claim 23) because once the binder precursor (in the slurry) is cured, it will not longer be a slurry, but a cured form thereof. This claim should be rewritten in a more clear manner.

Claim 31 is indefinite as to the way it is written because it does not clearly define that the abrasive particles comprise modified abrasive particles. The claim should be rewritten (i.e. **The method..., and ceramic abrasive particles, wherein the ceramic abrasive particles have been modified with at least one rare earth oxide modifier.**).

Claim 32 is indefinite as to the way it is written because it does not clearly define that the abrasive particles are modified with these additives. The claim should be rewritten (i.e. **The method..., and ceramic abrasive particles, wherein the ceramic abrasive particles have been modified with an oxide of at least one of...**).

Claim 32 is also indefinite because it appears to be outside the scope of claim 31 because “cobalt” and “magnesium” are not rare earths. This claim should be dependent on claim 22.

Claim 34 is indefinite as to the phrase “height defined at least partially by a parabolic function” because the examiner is unclear as to how this is defining the height of the composite. What is meant by a parabolic function and how does this define the composite? Are applicants trying to claim that the composite comprises side faces that are curved (parabola shaped)?

Claim 34 is also indefinite as to the phrase “, each of the abrasive composites, each of the abrasive composites” since this phrase is defined twice.

The other claims are indefinite because they depend on indefinite claims.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoopman et al. (248) in view of Abrahamson.

Hoopman et al. (248) teaches in column 7, line 59-column 15, line 7, a structured abrasive article which comprises a backing having a front face and a plurality of abrasive composites on the front face, wherein the abrasive composites comprises a mixture of conventional abrasive particles (which have the claimed size) and a radiation curable binder, the binder being present in the claimed amount. The composites are defined as being any shape and have a height within the claimed range. Column 17, line 17-column 18, line 68 and column 20,

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line 64-column 21, line 68 define methods of making the structured abrasive article, said method comprises the claimed steps. The article is used to grind a surface. Column 1, lines 28-53, column 4, lines 44-48, column 6, lines 20-35 and column 17, line 7-11 implies that the abrasive articles provide a consistent cutting rate and a consistent surface finish when used to grind a surface.

Abrahamson teaches in column 10, lines 35-40, column 11, lines 18-20 and claim 1, that rare earth oxide modified alumina and seed alumina are known abrasive particles to be used to make abrasive composites for structured abrasives.

With respect to the composition, the primary reference teaches structured abrasive articles which comprise all of the features on the instant claims, except the literal recitation of the cut rate/time limitation. The reference teach all of the claimed components and abrasive sizes and composite heights which encompass the claimed values and therefore no distinction is seen to exist because the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". With respect to the cut rate/time limitation, column 1, lines 28-53, column 4, lines 44-48, column 6, lines 20-35 and column 17, line 7-11 of Hoopman et al. (248) implies that the abrasive articles provide a consistent cutting rate and a consistent surface finish when used to grind a surface and it is the examiners position that this suggests or implies that the cut rate/time characteristics can be consistent with the claimed limitations absent evidence to the contrary. Although the reference does not literally define this limitation, this does not preclude the

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material of the reference from having this characteristic. Since the products are otherwise the same, one would expect these values to be the same also since they are a function of the material characteristics of the end-product. In addition, instant claims 1-13 use the phrase "in use" before the cut rate/time limitation and this phrase is the intended use, thus any limitation following said phrase is an intended use limitation which provides no weight to the claimed composition. **If applicants wish this limitation to be a consideration, they should remove the phrase "in use" from claim 1.** The primary reference teaches examples of abrasive particles and it is the examiners position that one skilled in the art would have found the use of any abrasive particles, specifically the ones disclosed by the secondary reference, obvious as the abrasive particles in the abrasive articles according to the primary reference because the substitution of one abrasive for another that is used for the same purpose (to make abrasive composites) is well within the level of ordinary skill in the art. With respect to the shape, the primary reference states that the composites can be any shape, thus making the claimed limitation of a parabolic shape obvious.

With respect to the method of making the article, the primary reference teaches all of the claimed method steps, thus no distinction is seen to exist.

With respect to the grinding method, the reference teaches a grinding method and it is the examiners position that multiple grinding steps is a obvious modification of the reference absent evidence to the contrary.

Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoopman et al. (217) in view of Abrahamson.

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Hoopman et al. (217) teaches in column 11, line 26-column 16, line 68, a structured abrasive article which comprises a backing having a front face and a plurality of abrasive composites on the front face, wherein the abrasive composites comprises a mixture of conventional abrasive particles (which have the claimed size) and a radiation curable binder, the binder being present in the claimed amount. The composites are defined as being any shape and have a height within the claimed range. A specific shape is defined in column 16, lines 43-47 (conical) and shown in the figures. Column 19, line 6-column 22, line 23 define methods of making the structured abrasive article, said method comprises the claimed steps. The article is used to grind a surface. Column 1, lines 25-53, column 4, lines 38-48, column 7, lines 1-10 and column 18, lines 54-60 implies that the abrasive articles provide a consistent cutting rate and a consistent surface finish when used to grind a surface.

With respect to the composition, the primary reference teaches structured abrasive articles which comprise all of the features on the instant claims, except the literal recitation of the cut rate/time limitation. The reference teach all of the claimed components and abrasive sizes and composite heights which encompass the claimed values and therefore no distinction is seen to exist because the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". With respect to the cut rate/time limitation, column 1, lines 25-53, column 4, lines 38-48, column 7, lines 1-10 and column 18, lines 54-60 of the reference implies that the abrasive articles provide a consistent cutting rate and a consistent surface finish when used to



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grind a surface and it is the examiners position that this suggests or implies that the cut rate/time characteristics can be consistent with the claimed limitations absent evidence to the contrary.

Although the reference does not literally define this limitation, this does not preclude the material of the reference from having this characteristic. Since the products are otherwise the same, one would expect these values to be the same also since they are a function of the material characteristics of the end-product. In addition, instant claims 1-13 use the phrase "in use" before the cut rate/time limitation and this phrase is the intended use, thus any limitation following said phrase is an intended use limitation which provides no weight to the claimed composition. **If applicants wish this limitation to be a consideration, they should remove the phrase "in use" from claim 1.** The primary reference teaches examples of abrasive particles and it is the examiners position that one skilled in the art would have found the use of any abrasive particles, specifically the ones disclosed by the secondary reference, obvious as the abrasive particles in the abrasive articles according to the primary reference because the substitution of one abrasive for another that is used for the same purpose (to make abrasive composites) is well within the level of ordinary skill in the art. With respect to the shape, the primary reference states that the composites can be any shape, thus making the claimed limitation of a parabolic shape obvious. In addition, the reference teaches a specific shape, as defined above, and this shape is parabolic, thus no distinction is seen to exist.

With respect to the method of making the article, the primary reference teaches all of the claimed method steps, thus no distinction is seen to exist.

With respect to the grinding method, the reference teaches a grinding method and it is the examiners position that multiple grinding steps is a obvious modification of the reference absent evidence to the contrary.

**In all the rejections above, the desired particle size is a function of the application and mere recitation of that size does not represent a patentable distinction over these references to one of ordinary skill in the art, lacking evidence to the contrary.**

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

**"A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968)". In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.**

**"A generic disclosure renders a claimed species prima facie obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)".**

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range

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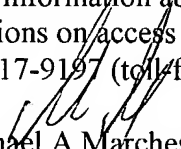
disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)".

The change in sequence of adding ingredients would have been obvious to one of ordinary skill in the art absent evidence to the contrary. *In re Gibson* 5 USPQ 230.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L Bell can be reached on (571) 272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael A Marcheschi  
Primary Examiner  
Art Unit 1755

4/8/04

MM